



RHONDDA
GEOTECHNICAL
SERVICES

VALIDATION REPORT
C.A. PERMIT No. 31233
M.T.C.B.C. PLANNING REF. P/22/0131
PAIR OF SEMI-DETACHED DWELLINGS
LAND ADJACENT TO
1A BLAENDOWLAIS
DOWLAIS
MERTHYR TYDFIL
CF48 3RB
27/07/2026

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INTRUSIVE INVESTIGATION VALIDATION REPORT

1. INTRODUCTION

This Validation Report has been produced for 3-D CAD Designs, Merthyr. They are acting as planning agents for Stephen Lee Collins. Granted Planning Permission P/22/0131 from Merthyr Tydfil L.P.A. is for a pair of semi-detached dwellings on a vacant plot adjacent to 1A Blaendowlais, Merthyr Tydfil. The intrusive investigation described within this report was required to discharge Conditions 6 of the granted permission:-

6. No development shall take place until a site investigation has been carried out in accordance with a methodology first submitted to and approved in writing by the Local Planning Authority. The results of the intrusive site investigation shall be submitted to the Local Planning Authority before any development begins. If any land instability issues are found during the intrusive site investigation, a report specifying the measures to be taken to remediate the site to render it suitable for the development shall be submitted to and approved in writing by the Local Planning Authority. Remedial measures shall be carried out prior to the first beneficial use of the development in accordance with the approved details and retained in perpetuity.

Rhondda Geotechnical Services were commissioned by the applicant to act as agents for the Coal Authority permit application ref. 31232. They also designed, instructed and supervised the intrusive works. This report will accompany the Permit Closure Form to be returned to the C.A. following the completion of the works. The report will also be submitted to M.T.C.B.C. for review in consultation with the C.A. to allow the discharge of Condition 6.

The site is centred on grid reference 307480, 207985 at an elevation of approximately 345m A.O.D. The plot is an irregular shaped area of rough ground formerly part of a broad railway trackbed. The site has an irregular outline covering an area of approximately 0.037 Ha. with residential properties on all sides. The site location is shown in Figure 1 overleaf, the site boundary is shown in Figure 2.

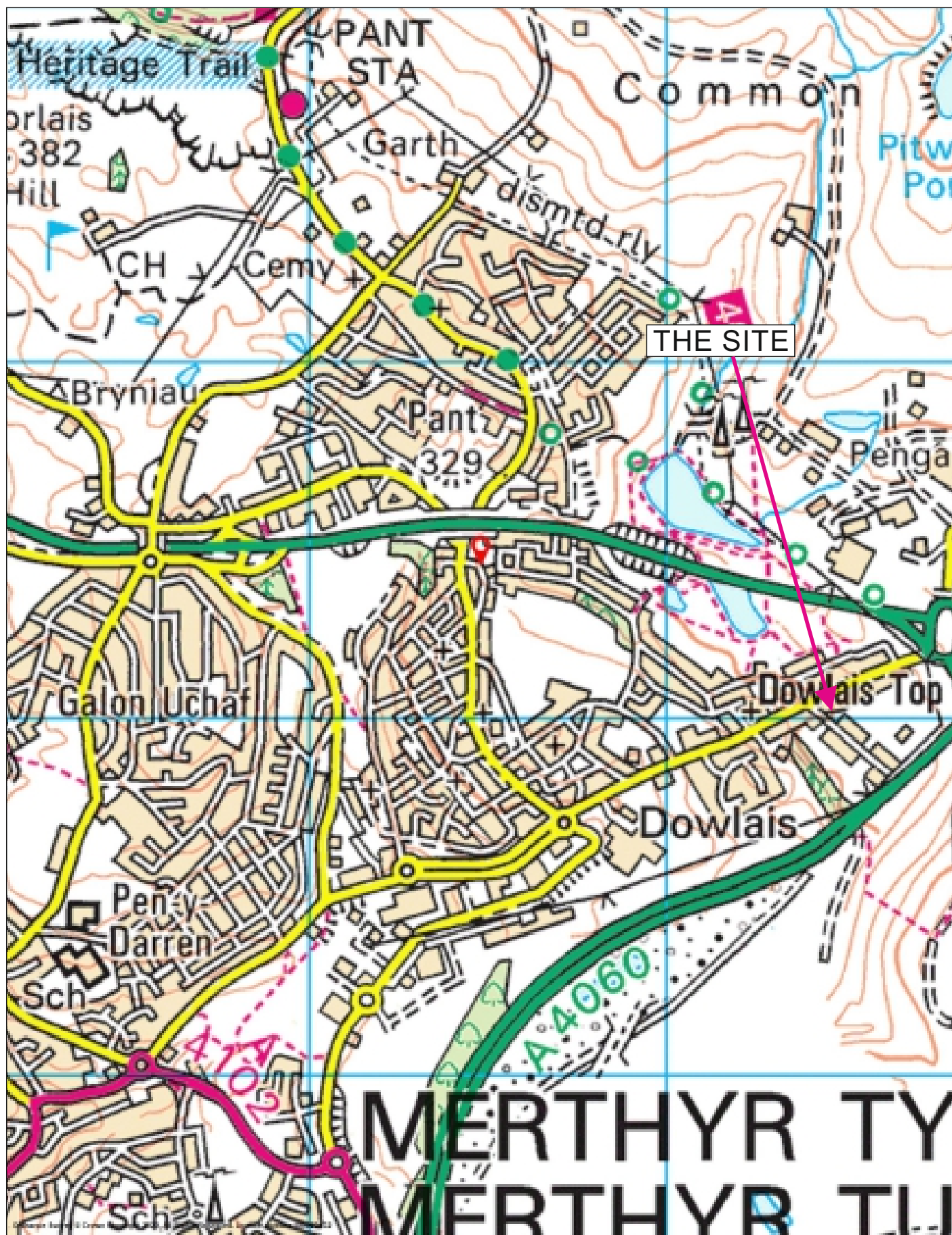


FIGURE 1
SITE LOCATION



FIGURE 2
SITE BOUNDARY IN RED.

2. BRIEF DESK STUDY

In circumstances where R.G.S. have not produced the C.M.R.A. it is company policy to carry out an independent review of the geology. This will enable anyone reviewing the Validation Report to place the results of the intrusive investigation in context. In the case of this site, the C.M.R.A. was produced by Blandford Consulting for Merthyr Tydfil C.B.C. in 2018. The Council were evidently the landowners at the time. The land was former railway land and would be among large tracts of former industrial infrastructure that the Council inherited with the demise of heavy industry in the area. The C.M.R.A. draws on an appropriate range of sources. The summary below will reference the original source material directly and produce brief summaries of information contained, where relevant to the site.

SOURCES OF INFORMATION

- a) Coal Authority CON29 Report ref 51001986507001.
 - b) The C.A. interactive viewer.
 - c) The 6" to the mile Geological Survey sheets GLAM 6SW (1927 revision, published 1932) and SO 00NE (1967-68 resurvey, published 1972)
 - d) The Memoirs of the Geological Survey of The South Wales Coalfield, Part V, The Country around Merthyr Tydfil (1st, 2nd and 3rd editions of 1904, 1932 and 1988) and other mining archive sources. The Iron Ores of Britain Vol.3 (1861). Special Report on the Mineral Resources of Great Britain, Vol XIII (1920).
 - e) Historic Ordnance Survey Map Glamorgan VI SW 1872 with 1899 and 1914 revisions
- 2a) The C.M.R.A. has a CON29 Report attached. By their nature, CON29s are inferior to a Consultants Report when producing a C.M.R.A. and are a poor choice. There is no Summary of Findings Plan showing outcrops, faults etc. only a plan with a much smaller search radius for mine entrances. There are no mine entrances shown and therefore there is little point in reproducing the map here. The main relevant fact is that the site is in a surface area that could be affected by underground workings in one seam of coal at shallow depth last worked in 1834. The report also identifies that the property is in a surface area that could be affected by underground mining in five seams of Ironstone at shallow to 90m depth and last worked in 1878. The terminology used in a CON29 is vague and unsatisfactory for an accurate assessment. Note that the report does not state that the site *is* underlain by workings, only that the site is within a surface area that *could be affected by workings*. This is a highly unsatisfactory catch all

that could be applied to large swathes of Merthyr and illustrates the drawbacks of using a CON29 as the starting point for a C.M.R.A. A further weakness is the use of the term “shallow”. This is taken by the author to mean <30m but is not implicitly stated.

b) The interactive viewer can be a very useful additional source of information on outcrops and mine entries when only a CON29 is available. Figure 3 is taken from the Mining Data window of the Viewer. The nearest outcrops to the site have been labelled by the author using the C.A. Seam Code Directory. From the ascending seam codes, it can be inferred that the strata are dipping to the southeast. If the Interactive Viewer is correct then the site will be underlain by the Garw Seam and the Five Foot Gellideg, but not by the Lower Seven Foot.

The nearest mine entrance to the site is 307207-058. This is an adit with an orientation of 12° i.e. driven away from the site. It is named as the Coedcae No.1 Level. The three next nearest entrances to the north of the site are also all orientated north and are all Ironstone Levels as opposed to coal. Further north again are a series of shafts. Since they are north of the Garw outcrop they must be sunk to the Rosser Ironstone Veins which are beneath the Garw Seam, the lowest workable coal.

c, d,) The terraced housing in Blaendowlais remains much as it was 100 years ago and the site can be readily located on the original Geological Survey Sheet GLAM 6SW and on the National Grid revision SO00NE. This has been done on the later revision in Figure 4. The trend of the outcrop pattern is very similar to the Interactive Viewer. This is hardly surprising as the Survey is the main source of the C.A.’s outcrop data via the British Coal Rationalised Plan. The major differences are that the Geological Survey does not show the outcrop of the Garw Seam and the outcrop of the Gellideg is south of the site. With a generalised strata dip to the southeast, this means the Gellideg Seam cannot underlie the site. It is worth explaining that the generalised Aberdare Seam Name system favoured by both the Survey and the former N.C.B. does not work well in East Merthyr. The seam names used were Lower Four Foot (Five Foot and Gellideg) and Lower Little Vein (Lower Seven Foot). The older map shows the Lower Four Foot outcrop in the position that the Gellideg occupies in the newer revision. Figure 5 is a section from the stratigraphic column of the older County Series Survey Sheet. The approximate site level is shown. Now, the only coal seam to underlie the site is the Garw. Unlike the western side of Merthyr, where the seam was worked extensively, there are very few records of the Garw Seam in the Dowlais area. The strata between the Garw and Gellideg seams contain multiple Ironstone Veins. These were formerly worked extensively from both surface “patching” and by underground methods. Patching was a primitive form of opencast mining with men women and children

excavating the ground by hand to collect the shallow Ironstone. The veins were always less than 300mm thick and worked underground on a semi-longwall method with an average working height of approximately 1.2m-1.4m. This produced a vast amount of waste that would be costly and impractical to take to the surface. The waste was immediately stowed behind the working face, supporting the roof to a certain extent.

The Ironstone veins are listed in the archive material as (in descending order) Spotted, Yellow, Red, Black, Blue, Big, Cnapiog/Lumpy/Garw. The latter three may well be one and the same. Mining of the basal Ironstone sometimes included the incidental removal of the Garw Coal Seam which had minimal separation from the lowest Ironstone Vein. Below the Garw Seam were the Rosser Veins. These were formerly highly prized and the reference in the CON29 to Ironstone workings at 90m depth undoubtedly refers to them. The author is in possession of multiple mine plans of Ironstone workings in the Dowlais area. The plans are of limited value and often only show permanent roadways and water drainage levels. To compound the difficulties in interpreting them, surface features are very limited, possibly inaccurate and often referencing buildings and morphological features already gone by the time of the earliest (1874) Ordnance Survey map.

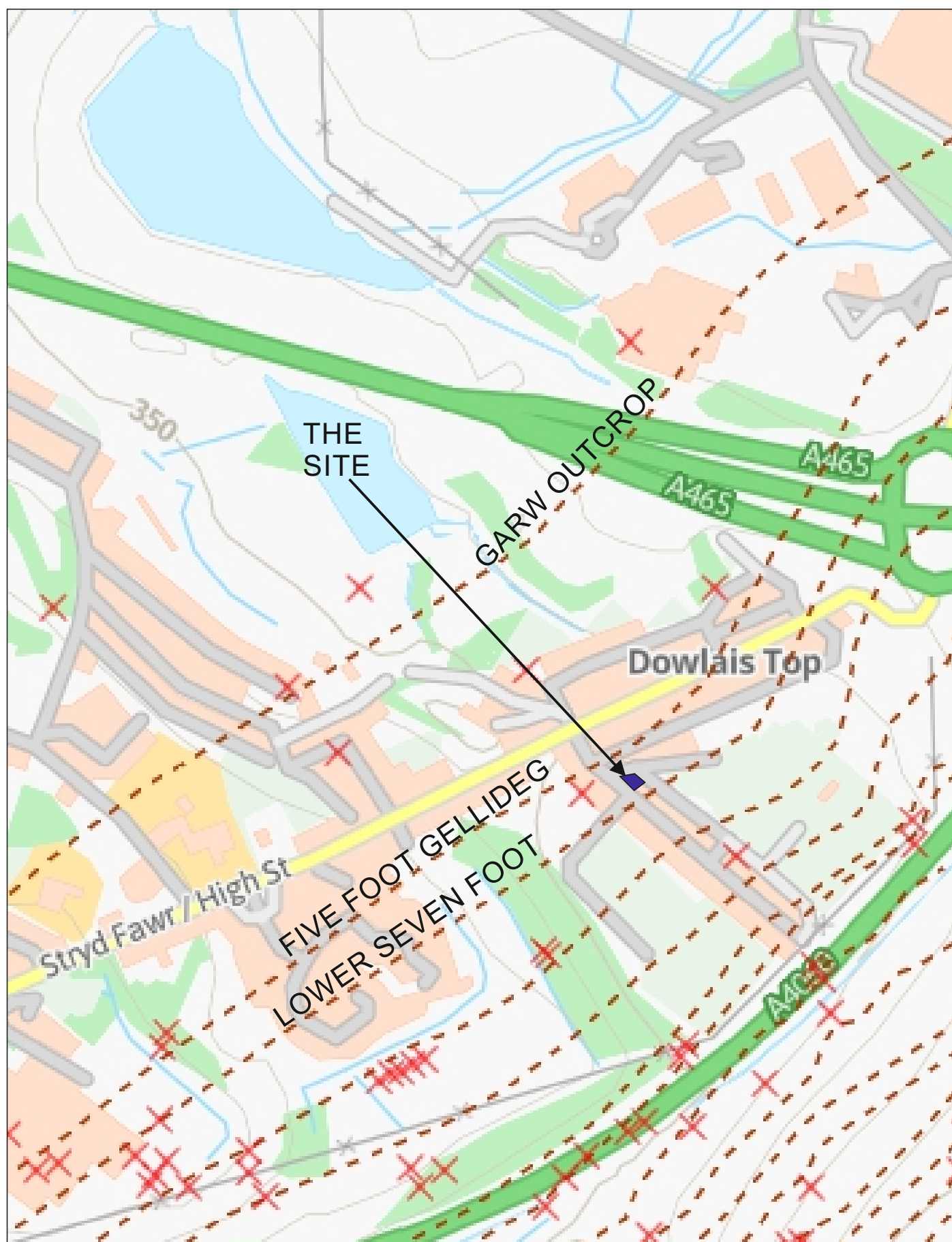


FIGURE 3
COAL AUTHORITY INTERACTIVE VIEWER, MINING DATA WINDOW.
RED CROSSES ARE MINE ENTRIES,
BROWN LINES ARE SEAM OUTCROPS

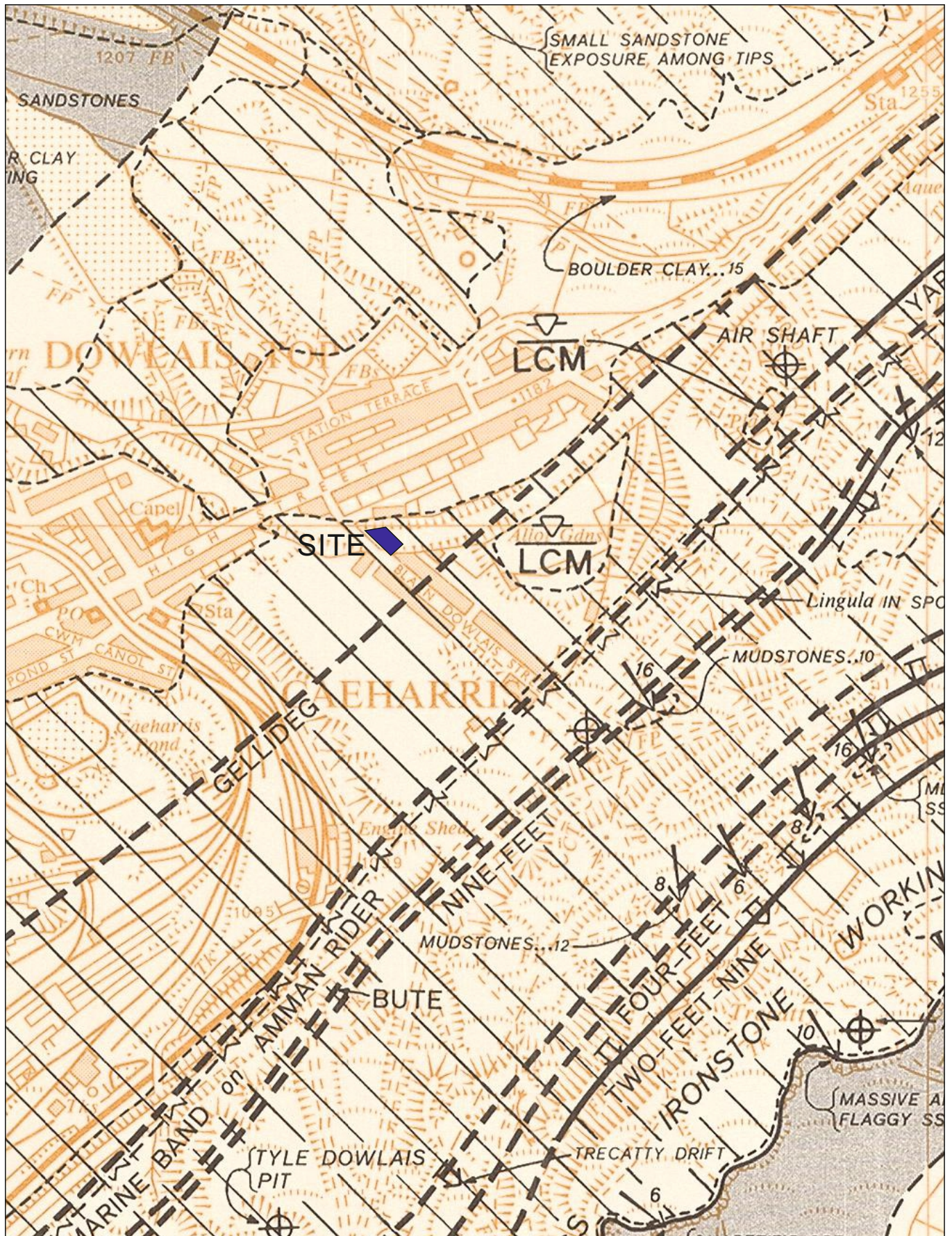


FIGURE 4
SECTION OF GEOLOGICAL SURVEY SHEET SO 00NE.
THE SITE IS HIGHLIGHTED IN BLUE.

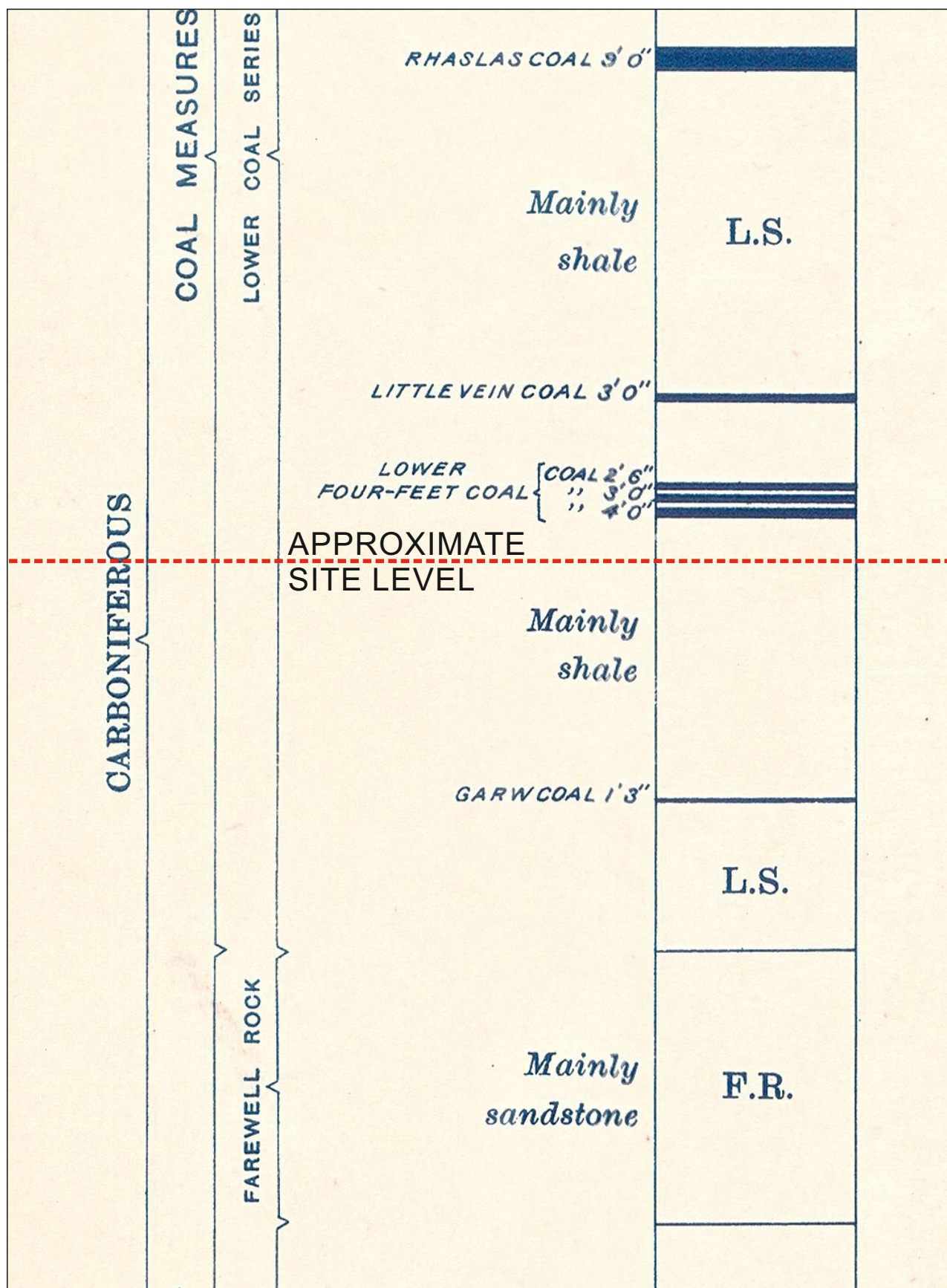


FIGURE 5
SECTION OF THE STRATIGRAPHIC COLUMN FROM GLAM 6SW
THE APPROXIMATE SITE LEVEL IS MARKED.

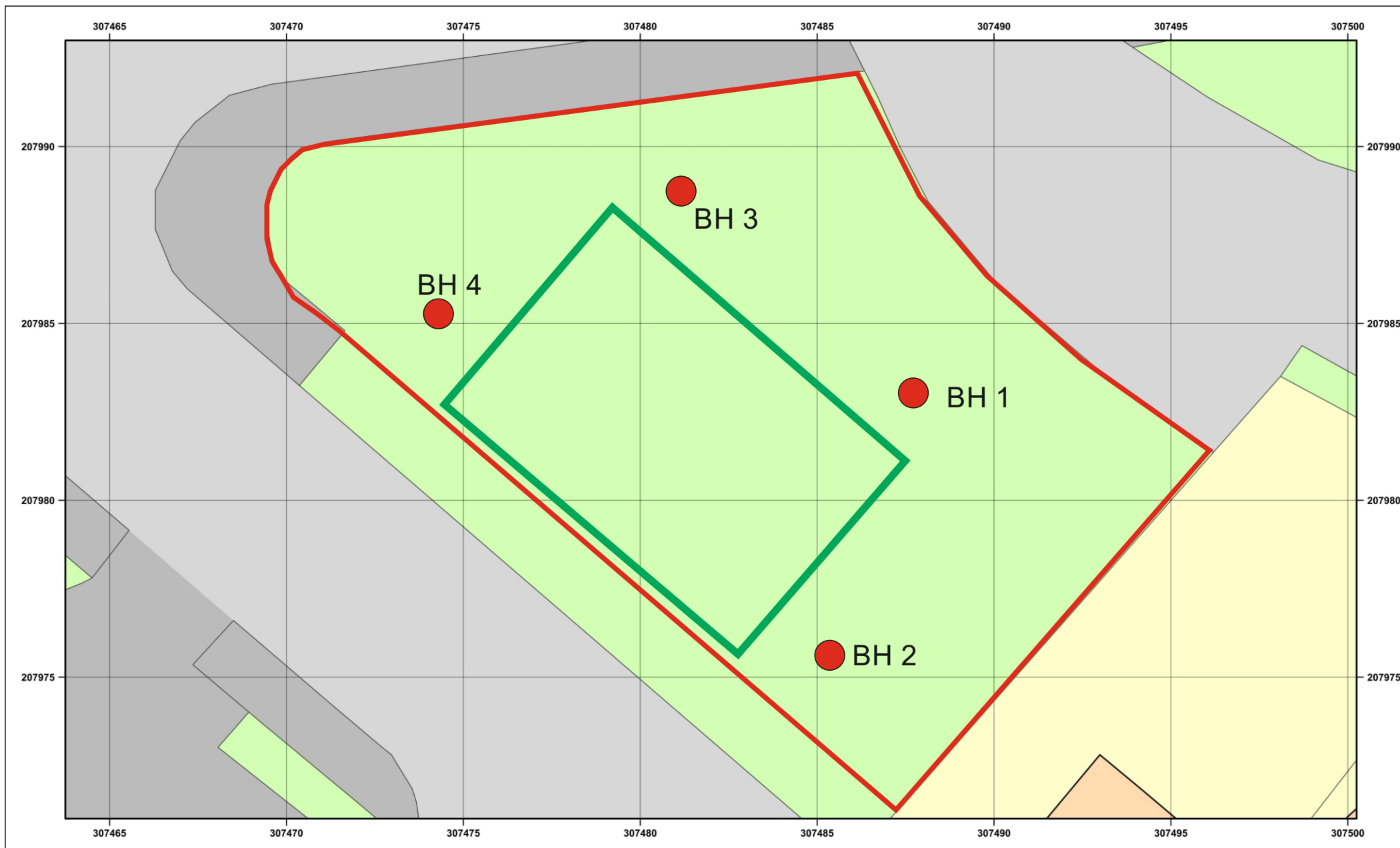


FIGURE 6 BOREHOLE LOCATIONS AT BLAENDOWLAIS STREET.
THE PROPOSED BUILDING FOOTPRINT IS OUTLINED IN GREEN.

3. SITE INVESTIGATION DESIGN

The granted planning application is for two modestly sized semi-detached properties. The permit application was made for four boreholes approximately in the positions shown in Figure 5. The presence of a buried 11KV cable meant that the positions as drilled varied slightly from the permit application plan but were still essentially outside the four corners of the proposed building footprint. At the time of the permit application, the depth of superficial deposits was unknown, but suspected to be 8m-10m of Colliery spoil or Glacial Till. Using this estimate, the permit application was made for 40m boreholes, with the intention of proving 30m of bedrock beneath the proposed buildings.

4. RESULTS

The boreholes were drilled between 12th-15th May 2026. Apex Drilling used a compact Fraste PLG rotary rig to drill the boreholes. The rig was chosen for two reasons. Strong, thick overburden above the bedrock was a possibility, requiring a rig with a powerful torque to case it off. Also, an earlier site visit had suggested the compact size of the rig would be crucial to access the proposed borehole positions on a small plot. Four boreholes were then drilled in the positions shown in Figure 5 on the preceding page.

All permit conditions were adhered to, with water flush being employed from rockhead after the superficial deposits were cased using air flush and an ODEX overburden casing system. When rockhead was established, the flush was switched to water. Continuous gas monitoring at the rig, and regular monitoring in the surrounding area detected no mine gases. Full borehole logs are contained in Appendix 1. In summary, BH1 was drilled to 40m proving 30m of bedrock beneath the superficial deposits. The superfcials comprised of less than a metre of clayey Made Ground over colliery spoil to 4.9m depth. Beneath this was a grey clay. This could possibly have been a natural Glacial deposit. However, the homogenous nature of the material and lack of hard rock gravel and cobbles that would be expected in the area pointed against this. The author formed the opinion that it might well have been backfilled “patching” and hence Made Ground. Mudstone bedrock was seen at 10.6m and proved to a depth of 40m. Within the Mudstone were occasional thin (0.2m-0.3m) very hard bands. These were widely spaced and very untypical of Sandstones within the Lower Coal Measures. Where present, Sandstone forms distinct units 2m-10m thick. The hard bands were assumed to be Ironstone. Although it is hard to be definitive when open holing with water flush, the desk study certainly pointed to the expected presence of multiple Ironstone veins.

BH2 encountered similar superficial deposits with Mudstone bedrock seen at 10.9m. At 21.2 there was a 0.4m thick Coal seam. The depth and seam thickness pointed to this being the Garw Seam. The presence of Ironstone veins both above and below the coal supported this (see Section 3). The borehole was drilled to 40m depth.

BHs 3 and 4 were also drilled to 40m. BH4 also had a 0.4m Coal Seam at 21.4m, although it was absent in BH3. All four boreholes proved a correlatable strata sequence although the coal seam seen in BH2 and BH4 was not present in the other two boreholes. Local thinning or absence of Coal seams is a common occurrence in South Wales. This can be due to either contemporaneous erosion (washouts) or to structural deformation (rolls-small scale fold/fault features). The absence of the seams was certainly not attributable to mining. There were no voids and no loss of flush. The boreholes were drilled to 18m+ below the expected seam position in BH 1 and 3 with full returns.

5. CONCLUSIONS

No voids were seen in any of the four boreholes. An intact coal seam was seen in two of the four boreholes. This was interpreted as the Garw Seam. Ironstone veins were inferred both above and below the coal seam. The presence of these would support the interpretation, but this is of academic interest only. There were no signs of either the coal or ironstone being worked. The absence of the coal in two of the boreholes was interpreted as a natural phenomenon. There were no voids and no loss of returns in any of the four boreholes. Since unrecorded shallow workings were the only potential mining legacy issue at the site, the site can now be considered safe and stable in line with national guidelines. The foundations of the proposed buildings can be designed purely based on the shallow ground conditions at the site. The considerable thickness of Made Ground means that specialist foundations such as a raft, or piles will be necessary. However, foundation design is outside the scope of this Validation Report. The purpose of the report is solely to establish there is no risk to ground stability at the site from mining legacy issues. This has been done and so M.T.C.B.C can safely discharge Condition 6 as no remediation measures are necessary. The author is unaware of any Coal Authority involvement other than the permit issue. The original C.M.R.A. is eight years old and ownership of the land has changed since then. The C.A. would have been statutory consultees for the original application. If M.T.C.B.C. do consult the C.A. Planning Department, then this Validation Report will be sufficient to demonstrate there is no reason for the C.A. to object to the granted planning.

Richard Davies BSc. (Hons.), MSc., F.G.S.

27.07.2026

APPENDIX 1

ROTARY BOREHOLE LOGS

BLAENDOWLAIS

MERTHYR TYDFIL

BH1 BLAENDOWLAIS	
Strata Depth (m)	Strata Description
G.L.-0.75	MADE GROUND. GRAVELLY CLAY
0.75-4.9	MADE GROUND. MUDSTONE GRAVEL (COLLIERY SPOIL)
5.2-10.6	GREY GRAVELLY CLAY
10.6-40.0	GREY AND BROWN MUDSTONE BECOMING DARK GREY WITH OCCASIONAL THIN (<0.3m) HARD BANDS (IRONSTONE?)

GROUNDWATER 25.2m WITH SUPERFICIALS STILL CASSED PRIOR TO GROUTING.

BH2 BLAENDOWLAIS	
Strata Depth (m)	Strata Description
G.L.-0.95	MADE GROUND. GRAVELLY CLAY
0.95-5.2	MADE GROUND. MUDSTONE GRAVEL (COLLIERY SPOIL)
5.2-10.9	GREY GRAVELLY CLAY
10.9-21.2	GREY AND BROWN MUDSTONE WITH OCCASIONAL THIN (<0.3m) HARD BANDS (IRONSTONE?)
21.2-21.6	COAL
21.6-40.0	GREY MUDSTONE WITH OCCASIONAL THIN (<0.3m) HARD BANDS (IRONSTONE?)

GROUNDWATER 24.1m WITH SUPERFICIALS STILL CASED PRIOR TO GROUTING.

BH3 BLAENDOWLAIS	
Strata Depth (m)	Strata Description
G.L.-1.1	MADE GROUND. GRAVELLY CLAY
1.1-5.6	MADE GROUND. MUDSTONE GRAVEL (COLLIERY SPOIL)
5.6-10.8	GREY GRAVELLY CLAY
10.8-40.0	GREY AND BROWN MUDSTONE BECOMING DARK GREY WITH OCCASIONAL THIN (<0.3m) HARD BANDS (IRONSTONE?)

GROUNDWATER 23.7m WITH SUPERFICIALS STILL CASED PRIOR TO GROUTING.

BH4 BLAENDOWLAIS	
Strata Depth (m)	Strata Description
G.L.-0.8	MADE GROUND. GRAVELLY CLAY
0.8-5.0	MADE GROUND. MUDSTONE GRAVEL (COLLIERY SPOIL)
5.0-10.6	GREY GRAVELLY CLAY
10.6-21.4	GREY AND BROWN MUDSTONE WITH OCCASIONAL THIN (<0.3m) HARD BANDS (IRONSTONE?)
21.4-21.8	COAL
21.8-40.0	GREY MUDSTONE WITH OCCASIONAL THIN (<0.3m) HARD BANDS (IRONSTONE?)

GROUNDWATER 23.4m WITH SUPERFICIALS STILL CASED PRIOR TO GROUTING.